

“What is found in biology is *mechanisms*, mechanisms built with chemical components . . .” Biologists do not always reach as far down as chemistry in characterizing biological mechanisms, but they do use the term *mechanism* naturally and often. A search I undertook of titles of articles in *Science* from 1880 to 1998 revealed 656 articles that included *mechanism*, *mechanisms*, or *mechanistic* in their titles. Only one appeared before 1900, and that concerned a psychological mechanism. Titles referring to biological mechanisms began in 1904 and are far more frequent than articles about non-biological mechanisms. They also outnumber articles that include *theory*, *theories*, or *theoretical* (584) or *law* or *laws* (165) in their title (the count for law discounted 25 titles clearly referring to political laws). A few of the early papers referring to mechanisms in their titles involved the vitalism–mechanism controversy that was still very active at the turn of the twentieth century. Most, however, focused on specific biological mechanisms. The following are some illustrative examples:

- Edwin G. Conklin (1908). The mechanism of heredity.
Frank R. Lillie (1913). The mechanism of fertilization.
E. Newton Harvey (1916). The mechanism of light production in animals.
Jacques Loeb (1917). A quantitative method of ascertaining the mechanism of growth and of inhibition of growth of dormant buds.
W. J. V. Osterhout (1921). The mechanism of injury and recovery of the cell.
John H. Northrop (1921). The mechanism of an enzyme reaction as exemplified by pepsin digestion.
F. H. Pike and Helen C. Coombs (1922). The organization of the nervous mechanism of respiration.
Caswell Grave and Francis O. Schmitt (1924). A mechanism for the coordination and regulation of the movement of cilia of epithelia.

These titles reveal an interesting variation in generality, with Conklin discussing *the* mechanism of heredity while Grave and Schmitt discuss *a* mechanism within a particular cell type. The latter reflects the sort of engagement of individual scientists and research teams that became the norm in the twentieth century. Individual scientists and research teams honed in on much more delimited phenomena at a scale that can be fruitfully investigated in a single laboratory across a period of perhaps a few years. At the general level a broad research community might devote itself to a general phenomenon such as protein synthesis and seek to identify the general nature of the mechanism of protein synthesis. Specific researchers, though, focus on particular components of the mechanism or on the mechanism that is operative in particular cells or particular organisms. This is reflected by considering some typical